

REMARKS

In the Office Action dated March 22, 2004, the Examiner rejected claims 1 and 4-14 under 35 U.S.C. § 103(a) as unpatentable over Nakagawa et al. (WO 00/46788) in view of Zhao (U.S. Patent No. 5,193,142) and Gales et al. ("Stateless Based Gaussian Selection in Large Vocabulary Continuous Speech Recognition Using HMM's, IEEE Transactions on Speech and Audio Processing, Vol. 7, No. 2, March 1999); rejected claims 2, 3, and 15-33 under 35 U.S.C. § 103(a) as unpatentable over Nakagawa et al. in view of Zhao and Gales et al., and further in view of Yamada et al. (U.S. Patent No. 5,193,142); and rejected claims 34-44 under 35 U.S.C. § 103(a) as unpatentable over Yamada et al. in view of Nakagawa et al. and Gales et al.

By this amendment, Applicants have amended claims 1, 9, 15, 16, 28, 29, 30, and 33. Claims 1-44 are pending in this application.

Based on the following arguments, Applicants respectfully traverse the Examiner's rejections under 35 U.S.C. § 103(a).

I. The Rejection of Claims 1 and 4-14 Under 35 U.S.C. § 103(a)

Applicants respectfully traverse the rejection of claims 1 and 4-14 under 35 U.S.C. § 103(a) as unpatentable over Nakagawa et al. in view of Zhao and Gales et al., because the Examiner has failed to establish a *prima facie* case of obviousness.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, the prior art reference (or references when combined) must teach or suggest all the claim elements. Furthermore, "[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art." See M.P.E.P. § 2143.01 (8th Ed., Aug. 2001), quoting *In re Wilson*, 424 F.2d 1382, 1385, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970). Second, there must be some suggestion or motivation, either in the

references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify a reference or to combine reference teachings. Finally, there must be a reasonable expectation of success. See M.P.E.P. § 2143 (8th Ed. 2001), pp. 2100-122 to 127.

Nakagawa et al., Zhao, and Gales et al. do not teach or suggest the recitations of claim 1. For example, the Examiner asserts that Nakagawa et al. teaches the step of "determining an address from the input speech vector." However, Nakagawa et al. fails to teach or suggest determining an address from the input speech vector, wherein the address includes a code representing the input speech vector and a code representing the Gaussian distribution. Indeed, Nakagawa et al. discloses that "[f]or the feature component of a feature vector, which is an object to be recognized, linear scalar quantization is adopted, and by using the quantized value as index, information in intermediate tables is referred to." See Nakagawa et al., *abstract*. The quantized value is not the same as an address including a code representing an input speech vector and a code representing the Gaussian distribution. Accordingly, Nakagawa et al. cannot teach or suggest the recitations of claim 1.

Furthermore, neither Zhao or Gales et al. teach or suggest an address as described above. Additionally, the Examiner has not presented evidence supporting the position that Zhao, Gales et al., and Nakagawa et al. can be combined to suggest the recitations of claim 1. For at least these reasons, Applicants request that the rejection of claim 1 under 35 U.S.C. § 103(a) be withdrawn and the claims allowed.

Claims 5-14 depend from claim 1. As explained, claim 1 is distinguishable from Nakagawa et al., Zhao, and Gales et al. Accordingly, claims 5-14 are distinguishable

from Nakagawa et al., Zhao, and Gales et al. for at least the same reasons set forth above in connection with claim 1, and Applicants therefore respectfully request that the rejection of these claims under 35 U.S.C. § 103(a) be withdrawn and the claims allowed.

Additionally, the rejection to claim 4 is improper. In the Office Action, the Examiner appears to reject claim 4 for the same reasons set forth for claim 2. See *Office Action*, page 3, last ¶. Claim 4 is rejected under 35 U.S.C. § 103(a) in view of Nakagawa et al., Zhao, and Gales et al. The Examiner, however rejects claim 2 under 35 U.S.C. § 103(a) in view of Nakagawa et al., Zhao, Gales et al., and Yamada et al. Because claim 4 depends on claim 2, the rejection of the former claim in view of Nakagawa et al., Zhao, and Gales et al. alone is improper.

Furthermore, the Examiner admits that Nakagawa et al., Zhao, and Gales et al. do not teach or suggest the recitations of claims 4 and 14. To compensate for this shortcoming, the Examiner appears to take Official Notice that such recitations are "obvious in the art," and it would have been obvious to one of ordinary skill in the art at the time the invention was made to "modify the method for recognizing speech of Nakagawa et al. wherein determining an address includes: concatenating a code representing the quantized input speech vector and a code representing the Gaussian distribution to form the address for accessing the table" and to "modify the method for recognizing speech of Nakagawa et al. wherein determining an address includes: concatenating a code representing a dimension number and a code representing the Gaussian distribution to form each of the separate addresses." See *Office Action*, page 3, ¶ 2 and page 9, ¶1.

Applicants traverse the Examiner's taking of Official Notice that the above-noted recitations of claims 4 and 14 are well known. An Official Notice rejection is improper unless the facts asserted are well-known or common knowledge in the art, and capable of instant and unquestionable demonstration as being well-known. See M.P.E.P. § 2144.03, the procedures set forth in the Memorandum by Stephen G. Kunin, Deputy Commissioner for Patent Examination Policy dated February 21, 2002, and the precedents provided in *Dickinson v. Zurko*, 527 U.S. 150, 50 U.S.P.Q.2d 1930 (1999) and *In re Ahlert*, 424 F.2d, 1088, 1091, 165 U.S.P.Q. 418, 420 (CCPA 1970). Further, any facts asserted as well-known should serve only to "fill in the gaps" in an insubstantial manner. It is never appropriate to rely solely on "common knowledge" without evidentiary support in the record as the principal evidence upon which a rejection is based. Applicants submit that the recitations recited in claims 4 and 14 are not unquestionably well-known, and the Examiner has failed to demonstrate the contrary. Accordingly, Applicants traverse the Official Notice and request that the Examiner either cite a competent prior art reference in substantiation of these conclusions, or withdraw the rejection.

Further, Applicants remind the Examiner of the following provision set forth in M.P.E.P. § 2144.03:

[w]hen a rejection is based on facts within the personal knowledge of the examiner, the data should be stated as specifically as possible, and the facts must be supported, when called for by the applicant, by an affidavit from the examiner. Such an affidavit is subject to contradiction or explanation by the affidavits of the applicant and other persons.

To the extent the Examiner is relying on personal knowledge in taking Official Notice that the features of claims 4 and 14 are well known, Applicants request that the

Examiner provide an affidavit evidencing such knowledge as factually based and legally competent to support the Examiner's conclusions.

For these additional reasons, Applicants request that the rejection of claims 4 and 14 under 35 U.S.C. § 103(a) be withdrawn and the claims allowed.

II. The Rejection of Claims 2, 3, and 15-33 Under 35 U.S.C. § 103(a)

Applicants respectfully traverse the rejection of claims 2, 3, and 15-33 under 35 U.S.C. § 103(a) as unpatentable over Nakagawa et al. in view of Zhao and Gales et al., and further in view of Yamada et al. because the Examiner has failed to establish a *prima facie* case of obviousness.

Claims 2 and 3 depend from claim 1. As explained, claim 1 is distinguishable from Nakagawa et al., Zhao, and Gales et al. Therefore claims 2 and 3 are also distinguishable from these references for at least the same reasons set forth above in connection with claim 1. Applicants respectfully request that the rejection of claims 2 and 3 under 35 U.S.C. § 103(a) be withdrawn and the claims allowed.

Furthermore, Yamada et al. does not make up for the deficiencies of Nakagawa et al., Zhao, and Gales et al. Yamada et al. fails to teach or suggest determining an address from the input speech vector, wherein the address includes a code representing the input speech vector and a code representing the Gaussian distribution. Yamada et al. merely describes the process of using scalar quantization. No where does Yamada et al. discuss determining an address from the input speech vector, wherein the address includes a code representing the input speech vector and a code representing the Gaussian distribution.

The Examiner rejects claims 15-19 for the same reasons set forth for claims 1 and 2-4. As explained, claims 1 and 2-4 are distinguishable from the cited art. Therefore, claims 15-19 are also distinguishable from the cited art for at least the same reasons set forth for claims 1 and 2-4. Applicants therefore request the Examiner to withdraw the rejection of claims 15-19 and allow the claims.

The Examiner rejects claims 20-27 for the same reasons set forth for claims 6 and 8-14. As explained, claims 6 and 8-14 are distinguishable from the cited art. Therefore, claims 20-27 are also distinguishable from the cited art for at least the same reasons set forth for claims 6 and 8-14. Applicants therefore request the Examiner to withdraw the rejection of claims 20-27 and allow the claims.

Additionally, the Examiner does not present evidence supporting the use of Yamada et al. in rejecting claims 15, 16, and 19-27. Accordingly, the Examiner has not presented a prima facie case of obviousness and has not met the burden set forth in 37 C.F.R. § 1.104 (b), (c), and (d) and M.P.E.P. § 707. For these additional reasons, Applicants request that the rejection of these dependent claims under 35 U.S.C. § 103(a) be withdrawn and the claims allowed.

The Examiner rejects claim 28 for the same reasons set forth for claims 1-2. As explained, claims 1-2 are distinguishable from the cited art. Therefore, claim 28 is also distinguishable from the cited art for at least the same reasons set forth for claims 1-2. Applicants therefore request the Examiner to withdraw the rejection of claim 28 and allow the claim.

The Examiner rejects claim 29 for the same reasons set forth for claim 1. As explained, claim 29 is distinguishable from the cited art. Therefore, claim 29 is also

distinguishable from the cited art for at least the same reasons set forth for claim 1. Applicants therefore request the Examiner to withdraw the rejection of claim 29 and allow the claim.

Claims 30 and 33 recite, *inter alia*, "determining a subset of possible quantized input values and storing each distance value with a corresponding address including a code representing one of the possible quantized input values and a code representing one of the one-dimensional Gaussian distributions in the table" and "storing the distance values with corresponding addresses, each address including a code representing a dimension number for one of the plurality of dimensions and a code representing a corresponding one-dimensional Gaussian distribution." This element is supported, for example, at the following portions of the specification: page 11, lines 8-11-18 and page 13, lines 16-21. Moreover, this element is in no way disclosed or suggested by Nakagawa et al., Zhao, Gales et al., and Yamada et al.

Claims 31 and 32 depend from claim 30. As explained, claim 30 is distinguishable from Nakagawa et al., Zhao, Gales et al., and Yamada et al. Therefore claims 31 and 32 are also distinguishable from these references for at least the same reasons set forth above in connection with claim 30. Applicants respectfully request that the rejection of claims 31 and 32 under 35 U.S.C. § 103(a) be withdrawn and the claims allowed.

Additionally, the Examiner does not present evidence supporting the use of Yamada et al. in rejecting claims 30-33. Accordingly, the Examiner has not presented a prima facie case of obviousness and has not met the burden set forth in 37 C.F.R. § 1.104 (b), (c), and (d) and M.P.E.P. § 707. For these additional reasons, Applicants

request that the rejection of these dependent claims under 35 U.S.C. § 103(a) be withdrawn and the claims allowed.

III. The Rejection of Claims 34-44 Under 35 U.S.C. § 103(a)

Applicants respectfully traverse the rejection of claims 34-44 under 35 U.S.C. § 103(a) as unpatentable over Yamada et al. in view of Nakagawa et al. and Gales et al. because the Examiner has failed to establish a *prima facie* case of obviousness.

Claim 34 recites "[a] method for determining multi-dimensional Gaussian distribution likelihood for an input speech vector using a small number of one dimensional Gaussian distributions" comprising, *inter alia*, "determining, from a table, probabilities of the one-dimensional Gaussian distributions for the dimensions of the input speech vector using codes representing the one dimensional Gaussian distributions and numbers representing the dimensions." Contrary to the Examiner's assertions, Nakagawa et al. does not teach or suggest determining, from a table, probabilities of the one-dimensional Gaussian distributions for the dimensions of the input speech vector using codes representing the one dimensional Gaussian distributions and numbers representing the dimension. Although Nakagawa et al. uses the quantized value of a feature vector as an index, Nakagawa et al. does not determine, from a table, probabilities of the one-dimensional Gaussian distributions for the dimensions of the input speech vector "using codes representing the one dimensional Gaussian distributions and numbers representing the dimension" as recited in claim 34.

Further, Yamada et al. and Gales et al. do not make up for the deficiencies of Nakagawa et al. As admitted by the Examiner, Yamada et al. fails to teach determining, from a table, probabilities of the one-dimensional Gaussian distributions for the dimensions of the input speech vector using codes representing the one dimensional Gaussian distributions and numbers representing the dimensions.

Gales et al. also fails to teach or suggest "determining, from a table, probabilities of the one-dimensional Gaussian distributions for the dimensions of the input speech vector using codes representing the one dimensional Gaussian distributions and numbers representing the dimensions" as recited in claim 34. Indeed, the Examiner merely used Gales et al. to show "determining the likelihood of a multi-dimensional Gaussian distribution based on the determined probabilities" but makes no attempt to show where the reference teaches the step of "determining, from a table, probabilities of the one-dimensional Gaussian distributions for the dimensions of the input speech vector using codes representing the one dimensional Gaussian distributions and numbers representing the dimensions" as recited in claim 34.

For at least these reasons, Yamada et al., Nakagawa et al., and Gales et al. fail to teach or suggest the recitations of claim 34. Accordingly, Applicants respectfully request that the rejection of this claim under 35 U.S.C. § 103(a) be withdrawn and the claim allowed.

Claims 38 and 42 recite elements similar to that discussed above with regard to claim 34. As explained, claim 34 is distinguishable from the cited art. Accordingly, claims 38 and 42 are also distinguishable for the same reasons set forth above in

connection with claim 34. Applicants therefore request the Examiner to withdraw the rejection of claims 38 and 42 and allow the claims.

Claims 35-37 depend from claim 34. As explained, claim 34 is distinguishable from Nakagawa et al., Gales et al., and Yamada et al. Therefore claims 35-37 are also distinguishable from these references for at least the same reasons set forth above in connection with claim 34. Applicants respectfully request that the rejection of claims 35-37 under 35 U.S.C. § 103(a) be withdrawn and the claims allowed.

Claims 39-41 depend from claim 38. As explained, claim 38 is distinguishable from Nakagawa et al., Gales et al., and Yamada et al. Therefore claims 39-41 are also distinguishable from these references for at least the same reasons set forth above in connection with claim 38. Applicants respectfully request that the rejection of claims 39-41 under 35 U.S.C. § 103(a) be withdrawn and the claims allowed.

Claims 43-44 depend from claim 42. As discussed above, Yamada et al., Nakagawa et al., and Gales et al. fail to teach at least the step of "determining, from a table, probabilities of the one-dimensional Gaussian distributions for the dimensions of the input speech vector using codes representing the one dimensional Gaussian distributions and numbers representing the dimensions" as recited in claim 42. Accordingly, Yamada et al., Nakagawa et al., and Gales et al. fail to teach all elements of claims 43-44, and Applicants therefore respectfully request that the rejection of these claims under 35 U.S.C. § 103(a) be withdrawn and the claims allowed.

IV. Conclusion

In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 07-2347.

Respectfully submitted,

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By: _____


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